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EXAMINER	
TORRES, JUAN A	

ART UNIT	PAPER NUMBER
2631	

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/731,456	REZNIK ET AL.	
	Examiner	Art Unit	
	Juan A. Torres	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☒ Claim(s) *6,10,14,19 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the receiver without the data buffer; the general first detector (not a blind MMSE) having an input to receive the received signal; the general and the RAKE second detector; a receiver comprising: an antenna for receiving a plurality of communication signals of differing power levels, the plurality of communication signals including a high power level group of signals and a low power level group of signals; a high data rate data detection device for detecting data of the high power level group of signals; an interference canceling device for receiving the detected data of the high power level group of signals and canceling a contribution of the high power level group detected data from the plurality of communication signals, as an interference canceled signal; and a low data rate data detection device for detecting data of the low power level group of signals from the interference canceled signal the WTRU; and the integrated circuit must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet,

and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 6, 10, 14, 19 and 24 are objected to because of the following informalities:

In claim 6 line 1 the recitation "RAKE" is suggested to be changed to "RAKE-receiver".

In claim 10 line 2 the recitation "RAKE" is suggested to be changed to "RAKE-receiver".

In claim 14 line 2 the recitation "Rake" is suggested to be changed to "RAKE-receiver".

In claim 19 line 1 the recitation "Rake" is suggested to be changed to "RAKE-receiver".

In claim 24 line 2 the recitation "Rake" is suggested to be changed to "RAKE-receiver".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 11-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The disclosure doesn't teach the apparatus for a receiver comprising an antenna for receiving a plurality of communication signals of differing power levels, the plurality of communication signals including a high power level group of signals and a low power level group of signals; a high data rate data detection device for detecting data of the high power level group of signals; an interference canceling device for receiving the detected data of the high power level group of signals and canceling a contribution of the high power level group detected data from the plurality of communication signals, as an interference canceled signal; and a low data rate data detection device for detecting data of the low power level group of signals from the interference canceled signal.

The disclosure doesn't teach the means for (35 U.S.C. 112, paragraph 6) a wireless transmit/receive unit (WTRU) comprising: means for receiving a plurality of communication signals of differing power levels, the plurality of communication signals including a high power level group of signals and a low power level group of signals;

means for detecting data of the high power level group of signals; high power level means for receiving the detected data of the high power level group of signals and canceling a contribution of the high power level group detected data from the plurality of communication signals, as an interference canceled signal; and low power level means for detecting data of the low power level group of signals from the interference canceled signal

The disclosure doesn't enable how to build an integrated circuit comprising: an input for receiving a plurality of communication signals of differing power levels, the plurality of communication signals including a high power level group of signals and a low power level group of signals; a high data rate data detection device for detecting data of the high power level group of signals; an interference canceling device for receiving the detected data of the high power level group of signals and canceling a contribution of the high power level group detected data from the plurality of communication signals, as an interference canceled signal; and a low data rate data detection device for detecting data of the low power level group of signals from the interference canceled signal

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent

granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 3, 7, 11, 16 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Keskitalo et al. (US 6128486).

As per claims 1 and 7 Keskitalo et al. (US 6128486) disclose a system for multiuser detection of a received signal, the received signal including voice signals and data signals, said system comprising: a first detector having an input to receive the received signal and an output, said first detector extracting the data signals from the received signal (figure 6 block 604 and figure 7, column 7 lines 64-66); a hard decision converter having an input connected to said first detector output and an output, said hard decision converter converting soft symbols output by said first detector into hard symbols (figure 7 block 724, column 8 lines 19-22); an interference canceller having a first input configured to receive the received signal and a second input connected to said hard decision converter output, and an output, said interference canceller canceling a contribution of the data signals from the received signal (figure 7 block 712 and 714, column 8 lines 23-26); and a second detector having an input connected to said interference canceller output, said second detector extracting individual voice signals, said second detector being a different detector type than said first detector (figure 6 block 606 and figure 8, column 8 lines 33-37).

As per claim 2 Keskitalo et al. (US 6128486) disclose data buffer having an input to receive the received signal and an output coupled to the first input of the interference canceller (figure 6 block 612, column 7 lines 9-16).

As per claim 3 Keskitalo et al. (US 6128486) disclose that the first detector output is connected to a symbol processing device; and the second detector output is connected to a symbol processing device (figure 8 block 812, column 8 line 66 to column 9 line 5).

As per claims 11, 16 and 21 Keskitalo et al. (US 6128486) disclose a receiver comprising an antenna for receiving a plurality of communication signals of differing power levels, the plurality of communication signals including a high power level group of signals and a low power level group of signals (figure 3 group A and group B, column 4 lines 46-51); a high data rate data detection device for detecting data of the high power level group of signals (figure 7 block 700 and 720, column 8 lines 1-13); an interference canceling device for receiving the detected data of the high power level group of signals and canceling a contribution of the high power level group detected data from the plurality of communication signals, as an interference canceled signal (figure 3 block 708, column 8 lines 14-16); and a low data rate data detection device for detecting data of the low power level group of signals from the interference canceled signal (figure 3 blocks 702 and 722, column 8 lines 1-13).

Claims 11-13, 15-18, 20-23 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Buzzi et al. ("Blind Adaptive Multiuser Detection for Asynchronous Dual-Rate DS/CDMA Systems" IEEE journal on Selected Areas in Communications Vol. 19 No. 2 February 2001).

As per claims 11, 16 and 21 Buzzi al. disclose a receiver comprising an antenna for receiving a plurality of communication signals of differing power levels, the plurality

of communication signals including a high power level group of signals and a low power level group of signals (figure 6 page 241); a high data rate data detection device for detecting data of the high power level group of signals (figure 5 page 240); an interference canceling device for receiving the detected data of the high power level group of signals and canceling a contribution of the high power level group detected data from the plurality of communication signals, as an interference canceled signal (page 234 equation 3, figure 5 page 240); and a low data rate data detection device for detecting data of the low power level group of signals from the interference canceled signal (page 234 equation 3, figure 5 page 240).

As per claims 12, 17 and 22 Buzzi al. disclose the high data rate data detection device comprises a blind minimum means square error data detection device (page 236 section IV and figure 3).

As per claims 13, 18 and 23 Buzzi al. disclose the low data rate data detection device comprises a matched filter (page 235 second paragraph).

As per claims 15, 20 and 25 Buzzi al. disclose the low data rate data detection device comprises a matched filter (page 236 section A).

Claims 1, 4-7 and 8-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Karlsson et al. (US Patent Application Publication US 20020057730).

As per claim 1 and 7 Karlsson et al. (US Patent Application Publication US 20020057730) disclose a system for multiuser detection of a received signal, the received signal including voice signals and data signals, said system comprising: a first detector having an input to receive the received signal and an output, said first detector

extracting the data signals from the received signal (figure 20 block 600, page 13 paragraph [0198]); a hard decision converter having an input connected to said first detector output and an output, said hard decision converter converting soft symbols output by said first detector into hard symbols (figure 20 block 600, page 13 paragraph [0198]); an interference canceller having a first input configured to receive the received signal and a second input connected to said hard decision converter output, and an output, said interference canceller canceling a contribution of the data signals from the received signal (figure 20 block 15000, page 13 paragraph [0199]); and a second detector having an input connected to said interference canceller output, said second detector extracting individual voice signals, said second detector being a different detector type than said first detector (figure 20 block 600, page 13 paragraph [0198]).

As per claim 4 and 8 Karlsson et al. (US Patent Application Publication US 20020057730) disclose a first detector is a blind square error detector (figure 20 block 600, page 13 paragraph [0196]).

As per claim 5 and 9 Karlsson et al. (US Patent Application Publication US 20020057730) disclose a second detector is a matched filter (figure 8 block 818, page 5 paragraph [0072]).

As per claim 6 and 10 Karlsson et al. (US Patent Application Publication US 20020057730) disclose a second detector is a matched filter (figure 18 block 1826, page 5 paragraph [0180]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 12-15, 17-20 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keskitalo et al. (US 6128486) as applied to claims 11,16 and 21 above, and further in view of Karlsson et al. (US Patent Application Publication US 20020057730).

As per claims 12, 17 and 22 Keskitalo et al. (US 6128486) disclose claims 11, 16 and 21. Keskitalo et al. (US 6128486) don't disclose that the data detection device comprises a blind least means square error data detection device. Karlsson et al. (US Patent Application Publication US 20020057730) disclose a first detector having an input to receive the received signal and an output, said first detector extracting the data signals from the received signal (figure 20 block 600, page 13 paragraph [0198]). The detector disclosed by Karlsson et al. (US Patent Application Publication US 20020057730) can be incorporated with the receiver disclosed by Keskitalo et al. (US 6128486). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the least means squared detector disclosed by Karlsson et al. (US Patent Application Publication US 20020057730) in the receiver disclosed by Keskitalo et al. (US 6128486) in order to minimize the error of the first detector.

As per claims 13, 18 and 23 Keskitalo et al. (US 6128486) and Karlsson et al. (US Patent Application Publication US 20020057730) disclose claims 12, 17 and 22. Karlsson et al. (US Patent Application Publication US 20020057730) also disclose a data detection device comprising a matched filter (figure 6, page 8 paragraph [0127]).

As per claims 14, 19 and 24 Keskitalo et al. (US 6128486) and Karlsson et al. (US Patent Application Publication US 20020057730) disclose claims 12, 17 and 22. Karlsson et al. (US Patent Application Publication US 20020057730) also disclose a data detection device comprising a RAKE receiver (figure 18, page 12 paragraph [0190]).

As per claims 15, 20 and 25 Keskitalo et al. (US 6128486) and Karlsson et al. (US Patent Application Publication US 20020057730) disclose claims 12, 17 and 22. Karlsson et al. (US Patent Application Publication US 20020057730) also disclose a data detection device comprising a multi-user detector (figure 18, page 8 paragraph [0179]).

Claim 14, 19 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buzzi et al. ("Blind Adaptive Multiuser Detection for Asynchronous Dual-Rate DS?CDMA Systems" IEEE journal on Selected Areas in Communications Vol. 19 No. 2 February 2001) as applied to claims 12,17 and 22 above, and further in view of Karlsson et al. (US Patent Application Publication US 20020057730). Buzzi et al. disclose claims 12,17 and 22. Buzzi et al. don't disclose the use of a rake receiver for the low data rate data detector. Karlsson et al. disclose the use of a rake receiver for the multi rate detectors. The RAKE detector disclosed by Karlsson et al. (US Patent

Application Publication US 20020057730) can be integrated with the receiver disclosed by Buzzi et al. It would have been obvious to one of ordinary skill in the art at the time the invention was made in order to minimize the multipath interference of the low data rate detector to use the rake detector disclosed by Karlsson et al. (US Patent Application Publication US 20020057730) in the receiver disclosed by Buzzi et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. G

MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER

JAT

JAT 11/15/2004